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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,396

11/19/2003

Takashi Iwamoto

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02/17/2006

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/715,396	Applicant(s) IWAMOTO, TAKASHI	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyocera Corp (JP 2000-261284). Kyocera shows (fig. 1) an electronic component (S) comprising: a substrate (1); at least one piezoelectric vibrating portion (area at excitation electrodes, 2) and a connecting portion (3) provided on the substrate (1); and a structural piece (6) made of a resin material (note that resin falls under the aegis of an insulator) having a flat plate shaped and covering at least the at least one piezoelectric vibrating portion: wherein the structural piece (6) has an integrated structure and is provided with a concavity (G) including a top portion and side walls covering the at least one piezoelectric vibrating portion, the concavity defining a space so as not to disturb at least the vibration of the piezoelectric vibrating portion.

The structural piece (6) seals at least one piezoelectric vibrating portion (from outside the device).

The structural piece (6) includes a mounting portion (7) provided on the upper surface thereof, and is provided with a connecting wiring (5) for electrically connecting the mounting portion (7) and the connecting portion (3).

The mounting portion (7) does not overlay the connecting portion (3) in a thickness direction of the structural piece (6). Note that the connecting portions (3) extend beyond the lateral ends of the mounting portions (7) and that the mounting portions (7) do not touch the substrate but are prevented from it since they reside on the connection portions (3) and thus do not overlap the connection portions (3) in a thickness direction.

Regarding claims 5 and 6, recitation of how the concavity is formed is not further limiting to the claimed structure and is therefore not germane to the issue of the patentability of the device itself. Therefore, these limitations have not been given patentable weight.

The structural piece (6) includes at least one through hole in which the pillar-shaped electrodes (5) are located.

Kyocera shows the claimed invention except for no structural element disposed between the structural piece and the at least one piezoelectric vibrating portion. It would have been obvious to one having ordinary skill in the art to omit said structural piece, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. In re Karlson, 136 USPQ 184.

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyocera Corp (JP 2000-261284) in view of Suga et al. (US 2002/0140322 A1). Given the invention of Kyocera as noted above, it is not explicitly clear which materials are employed for their structural components.

Suga et al. show (figs. 3 and 6) an electronic component comprising: a substrate (1); at least one piezoelectric vibrating portion (area at excitation electrodes, 21) and a connecting portion (20) provided on the substrate (1); and a structural piece (6) made of a resin material having a flat plate shape; wherein the structural piece (6) has an integrated structure and is provided with a concavity (210) including side walls, the concavity defining a space so as not to disturb at least the vibration of the piezoelectric vibrating portion.

The structural piece (6) seals at least one piezoelectric vibrating portion (see paragraph 33).

The structural piece (6) includes a mounting portion (5) provided on the upper surface thereof, and is provided with a connecting wiring (4) for electrically connecting the mounting portion (5) and the connecting portion (20).

The mounting portion (5) does not overlay the connecting portion (20) in a thickness direction of the structural piece (6). Note that the mounting portions (5) do not touch the substrate but are prevented from it since they reside on the connection portions (20) and thus do not overlap the connection portions (20) in a thickness direction.

Regarding claims 5 and 6, recitation of how the concavity is formed is not further limiting to the claimed structure and is therefore not germane to the issue of the patentability of the device itself. Therefore, these limitations have not been given patentable weight.

Suga et al. structural piece (see fig. 6) is made of a polyimide film or a liquid crystal polymer film.

The structural piece is made from a photosensitive material (polyimide resin, epoxy).

The substrate is made of a material selected from the group consisting of LiTaO₃, quartz, LinbO₃ and Li₂B₄O₇. See paragraph 40.

Suga et al. note use of electrodes with a material selected from the group consisting of Al, Cu, an Al-Cu alloy and Au. See paragraph 41.

Suga et al. don't show the structural piece covering at least the at least one piezoelectric vibrating portion. It is not clear that the electrodes of the piezoelectric vibrating portion is made of a material selected from the group consisting of Al, Cu, and Al-Cu alloy and Au.

It would have been obvious to one having ordinary skill in the art to employ the photosensitive polyimide resin material and a material selected from the group Al, Cu, and Al-Cu alloy and Au for the electrodes of the piezoelectric vibrating portion in the device of Kyocera at the time of that invention as suggested by Suga et al. since the former material is easy to shape and the latter materials are known, good conductive elements. It would also have been obvious to one having ordinary skill in the art to employ a LiTaO₃ component in the device of Kyocera, as is taught by Suga et al. because this material is a reliable and well-known material for just such devices.

Additionally, it would have been obvious to one having ordinary skill in the art to employ a structural piece covering at least the at least one piezoelectric vibrating

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portion in the device of Suga et al. as is taught by Kyocera in order to provide more protection for the device.

Finally, It would have been obvious to one having ordinary skill in the art to employ the materials claimed by the applicants since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

October 7, 2005

Thomas M. Dougherty
TOM DOUGHERTY
PRIMARY EXAMINER